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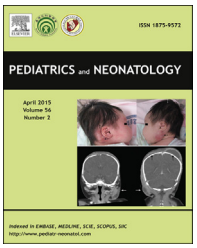

LETTER TO THE EDITOR

Reply — Gastric Residuals, Feeding Intolerance, and Nectrotizing Enterocolitis in Preterm Infants

To the Editor,

We would like to thank the authors of the Letter to the Editor for their thoughtful questions and concerns about the algorithm in our review titled 'Gastric residual evaluation in preterm neonates: a useful monitoring technique or a hindrance?' Because of the devastating nature of necrotizing enterocolitis (NEC), we agree that careful monitoring of infants at risk for this disease is imperative. Feeding intolerance in this population of infants is a common occurrence that is often difficult to differentiate from the early stages of NEC. Our feeding algorithm was developed to provide guidance to clinicians when faced with the dilemma of how to proceed with infants exhibiting signs of feeding intolerance or potential NEC.

In our feeding algorithm, infants with an abnormal abdominal assessment including distention, emesis, discoloration, and/or tenderness but without abnormal radiologic findings, are considered to have feeding intolerance, and it is recommended that they undergo gastric residual evaluation. Although the routine assessment of gastric residuals before every feeding may be unnecessary, it is often used as a tool in determining further clinical evaluation and management in those infants exhibiting signs of feeding intolerance.

We proposed this feeding algorithm as a guideline to assist in decisions regarding the management of infants with signs of feeding intolerance and NEC. As with all guidelines, individual clinical judgment remains an essential component of care. We fully support the use of such judgment in infants exhibiting signs of feeding intolerance and NEC, and agree that other aspects of the infant's clinical condition require careful monitoring as appropriate. As such, nonadherence to feeding algorithms or guidelines may be appropriate.

To address the question regarding how to proceed with an infant who exhibits abnormal abdominal characteristics but who does not have a gastric residual >50% or one that is bilious or bloody, we again suggest that individual clinical judgment is an imperative addition to any feeding algorithm. We agree that large or abnormal gastric residuals may not always be present in infants with NEC, and infants who exhibit other concerning physical symptoms may require additional monitoring and treatment. This has never been an exact science.

There is inconclusive evidence that routine evaluation of gastric residuals is necessary to diagnose and/or prevent feeding intolerance and NEC. In addition, little consensus exists regarding the amount or characteristics of gastric residuals that should be considered abnormal.[1–3] Murgas et al recently reported the results of a randomized clinical trial involving 61 very low birth weight premature infants that compared the amount of feeding at 2- and 3-weeks of age, days to full feeds, growth and incidence of parenteral nutrition associated liver disease, NEC, and sepsis between infants who underwent routine evaluation of gastric residual evaluation versus those who did not. Although they found no statistically significant differences between groups, infants who did not undergo routine evaluation of gastric residual obtained full feedings (150 mL/kg/d) 6 days early and had 6 fewer days of central venous access.[4] In addition, we are currently enrolling participants in a larger randomized clinical trial to determine both the risks and benefits of performing routine gastric residual evaluation in very low birth weight infants.

The authors of the letter also question the lack of inclusion of other laboratory values. We assume they mean complete blood counts, platelets, and C-reactive proteins as examples. These "biomarkers", albeit commonly used, have very poor predictive and diagnostic value for NEC,[5] and hopefully better diagnostic tools will be available soon.

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Conflicts of interest

The corresponding author is on the scientific advisory panel of Medela and a consultant for Infant Microbial Therapeutics.

References

1. Cobb BA, Carlo WA, Ambalavanan N. Gastric residuals and their relationship to necrotizing enterocolitis in very low birth weight infants. *Pediatrics* 2004;**113**:50—3.
2. Bertino E, Giuliani F, Prandi G, Coscia A, Martano C, Fabris C. Necrotizing enterocolits: risk factor analysis and role of gastric residuals in very low birth weight infants. *J Pediatr Gastroenterol Nutr* 2009;**48**:437—42.
3. Mihatsch WA, von Schoenaich P, Fahnenstich H, Dehne N, Ebbecke H, Plath C, et al. The significance of gastric residuals in the early enteral feeding advancement of extremely low birth weight infants. *Pediatrics* 2002;**109**:457—9.
4. Torrazza RM, Parker LA, Li Y, Talaga E, Shuster J, Neu J. The value of routine evaluation of gastric residuals in very low birth weight infants. *J Perinatol* 2015;**35**:57—60.
5. Thuijls G, Derikx JP, van Wijck K, Zimmermann LJ, Degraeuwe PL, Mulder TL, et al. Non-invasive markers for early diagnosis and determination of the severity of necrotizing enterocolitis. *Ann Surg* 2010;**251**:1174—80.

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